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ABSTRACT

Three problems currently facing education are: reduced public confidence and reduced willingness to support budgets for all government agencies; unnecessarily expensive public education; and no recognized way to determine if an educational program is cost effective. A realistic system of management by objectives may be the best defense against all three problems, but it must be rejected as a system for directly evaluating the performance of administrators, teachers, or other employees. An examination of measurable and unmeasurable objectives and an identification of the constraints to learning lead to this conclusion: when a faculty member and administrator discuss the output of classes (units earned by students) each semester, and their discussion leads to increasing the output and reducing the cost, this becomes the essence of a management by objectives system. Institutional objectives should also relate to the spectrum of service functions, and faculty should be motivated to work toward a management by objectives system. This process needs to be monitored by an outside educational auditor who can assure the public that a statistically reliable selection of program objectives has been achieved as reported. The best process seems to be an institutional objectives approach to management by objectives with strong emphasis on increasing output and reducing costs. (Author/NH)

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INDIVIDUALIZING INSTRUCTION AND MANAGEMENT BY OBJECTIVES

I would like to describe three problems which education currently faces:

1. The first problem is the fact that all government agencies - local, state and national - face reduced public confidence and reduced willingness to support even bare bones budgets. Just a few years ago many people believed that the generous support of public education would automatically lead all students to economic success and would lead to quick solutions for most of our national social and economic problems. Unfortunately these problems are still very visible and each year more people seem to become disillusioned with education. As educators we feel this disillusionment is unfair to education and particularly to Technical Education. However, it appears that Technical Education, even with its many demonstrated successes, will face during the next few years, an increasing problem of obtaining essential funds to support the present programs.

2. Let's look at the second problem -- critics of public education have been vocal in calling schools unnecessarily expensive. Increased salaries for administrators, faculty, custodians, typists and maintenance men, it is claimed, have driven the costs of education up even faster than the cost of living. In a recent report, the United States Chamber of Commerce stated that, if the present trend continues, within the next 25 years each worker in the private sector will be supporting one worker in the public sector (with those in public education being the largest group in the public sector). Too many of our public believes that education is unnecessarily expensive

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and inefficient.

3. The third and last problem I am going to mention facing public education is the fact that there is no recognized way of determining whether an educational program is cost effective or not. As the inevitable national economic problems increase causing the public to search for ways to cut taxes and to spend their tax money on the most cost-effective programs, public education is not currently prepared to defend with any real logic and conviction even its present share of federal, state and local tax funds. This lack of adequate defense can become extremely serious with the possible result of public education receiving an even smaller share of the tax dollar.

Of all the segments of public education, vocational-technical education has the best image from the standpoint of these three problems. It is immediately visible as a prime source for helping increase individual student earning power and potential productivity. Vocational-technical education appears to be more productive to most critics of public education because its graduates go immediately to work and many produce more from the first day than the man off the street produces after weeks of work.

Although vocational-technical education is better off than other areas of education, we have no reason for complacency. The actions of the people in this room will have much to do with determining the losses which will be suffered by the programs we represent.

What then can be done?

A realistic system of management by objectives, thoroughly understood and supported by administrators, faculty, advisory committees, and the local media representatives may be the best defense against all three of the problems just described. Achievement of an operational

management by objectives system applied to Institutional Objectives inevitably points up the need for individualizing instruction to help more students meet more of their educational objectives, not only in vocational-technical education but in almost all other areas of education. Since management by objectives and individual instruction are really closely interrelated these two generally separate topics are to be considered together in this talk.

When applied to vocational-technical education, management by objectives means many things to many people. Rather than defining management by objectives as an abstract concept, let me describe how I believe it can best be applied to Technical Education programs; how support for the system can be obtained from the various school and community groups; and what some results of these activities are likely to be.

First, management by objectives must be rejected as a system for directly evaluating the performance of administrators, teachers or other employees. This rejection must be made publicly, emphatically, and in complete honesty. It should be said in writing each time management by objectives for an educational institution is described. Management by objectives can only be used to evaluate one person and that is the chief administrator answerable to the trustees. Even that may not always be fair. There are too many external constraints placed on the output of a classroom teacher to make it possible to evaluate that person on objective output measures. Every group of students widely varies in its capabilities, effort factors, and external forces which effect learning. We don't know how and in our life time never will know how to measure these factors. If your state legislature or local board forces you by edict to use a so-called system of management by objectives

as a significant part of an employee evaluation plan, do all in your power to convince them to change their policy. In my opinion such a policy dooms management by objectives to failure and makes the Institutional Objectives approach when subsequently tried much more difficult for faculty and staff to accept.

In the front page of every management by objectives report made to the trustees of the institution where I work, is the following statement:

> "The reader is cautioned to make special note that this document includes in its title, the words INSTITUTIONAL OBJECTIVES. No one instructor nor administrator can be held personally accountable for any one class section output or one course output. There are too many human variables associated with the input factors - the students - to be able to identify, classify and make precise judgments about the constraints which apply to any one group of students.
>
> The Institution, when taken as a whole and with its measured output statistics compared from year to year, can show the instructors, staff, trustees, and the communities served, the extent to which progress is being made toward meeting the Institutional Objectives in a more cost effective manner.

So first and foremost a management by objectives system should not be a device to evaluate staff members. It is a management tool

which starts with carefully stated objectives.

What then is a management by objectives system?

An institutional objectives approach to management by objectives directs the attention of the trustees, faculty, administrators, students and community to the task of formulating objectives for the institution which are measurable and those which are currently unmeasurable.

First, let's look at two examples of measurable objectives for service functions of an occupational technical education program:

Physically Handicapped Program - Measurable Objective

During 1974-75, fifty-five (55) physically handicapped students, as defined by state regulation, will be recruited, counseled and enrolled in training programs judged realistic for each individual student by the counselor, pertinent instructor and the Dean of Vocational Education and thirty-five will be placed in jobs judged to be appropriate by the State Department of Rehabilitation.

Previous accomplishment:

1972-73 - 48 handicapped students enrolled and 28 placed.

1973-74 - 52 handicapped students enrolled and 32 placed.

Occupational Internship Program - Measurable Objectives

Of the total number of students enrolled in the Occupational Internship Program 85% will persist until the end of the semester and will achieve at least a grade of B as awarded by their employers.

Previous accomplishment: 1972-73 - 81% Grade Average - B-

1973-74 - 78% Grade Average - B

There are significant educational output achievements which are currently unmeasurable. If these are ignored in the management by objectives reporting system then both staff and the public may overlook or downgrade important services. The following is one way of looking at currently unmeasurable objectives followed by a measurable objective in the same service area.

MAINTENANCE AND OPERATIONS SERVICES CURRENTLY UNMEASURABLE OBJECTIVES

Currently Unmeasurable Objectives:	Actions to be Taken to Help Achieve These Objectives:
A. The maintenance and operation function of the college will provide an environment which will be conducive to the learning and social activities for students and for community service activities which take place on campus. B. The physical environment of the campus will be neat and attractive in appearance, clean and sanitary, comfortable and utilitarian.	The staff of the maintenance and operations departments of the college and the responsible administrator's staff shall make every effort within the limitation of the budget to make the campus environment appear as attractive as possible.

MEASURABLE OBJECTIVES - MAINTENANCE AND OPERATIONS SERVICES

At the end of each semester, a 15 percent sampling of students will evaluate maintenance and operations services by anonymously answering a

maintenance and operations questionnaire. Their ratings will average 3.0, or better, on a 5 point scale with 4 as the best rating.

1973-74 = Achievement - 3.2; Objective - 3.0

1974-75 = Achievement - ; Objective - 3.2

Even these departmental and support functions must be carefully identified, defined, and evaluated if we are to help students achieve more educational objectives at a lower cost.

In addition, each course taught in school should have a set of measurable and currently unmeasurable objectives prepared by the instructor and reviewed and verified by an advisory committee, a licensing board or a group of other instructors. If this is true or if the staff is working toward this goal then the principal measurable objective for an institution will be the number of units earned by students. For example, a small school such as the one I represent might project its principal measurable institutional objective that of helping its students earn 20,000 units of credit for the year. The units of credit (some people still refer to them as Carnegie units) earned by students in each teacher's classes when added together equals the institution's principal projected output. When the current expense expenditures for an institution are divided by the units earned by all students the result is an average cost figure; for example $\frac{\$1,200,000 \text{ cost}}{20,000 \text{ units}}$ = $60 per unit. That cost figure should be a part of the institution's measurable objective projected at the first of the year and everyone on the staff should be interested in finding out how closely the achievement came to the projected objective.

To bring this per unit cost closer to where cost figures have meaning to staff members we provide each instructor with the direct

cost of each of his classes (including salaries of instructor, teaching assistants, supplies and equipment repair and replacement). He sits down with his coordinating administrator and divides the cost for each of his classes by the number of units earned by students and gets his own cost per unit earned by students. The teacher and his administrator compare this semester's cost per unit with costs from several previous semesters. They consider ways to reduce costs and to increase output (units earned by students) without lowering standards (verified measurable objectives are essential).

One of the most important results of the conferring sessions between the faculty member and his coordinating administrator is the identification of constraints to learning which exist in classes and in the school as a whole. Then they identify ways to remove or reduce these constraints -- helping more students achieve more objectives typically means reducing learning constraints.

Three years ago the most commonly identified constraint to learning was lack of student motivation at our institution. As a result three research studies were initiated to assess the effort factors which it was hypothesized were lacking in our students. Frankly, these studies were not very productive. At the same time, we began a telephone search .... seeking to identify programs being used in schools and colleges which positively affected student motivation. Several leaders from schools who were reported to have successful programs were invited to discuss with the faculty a process called Self Actualization - Human Potential process. Dean of Student Personnel, all counselors and 3/4 of all faculty went through a training process. Soon they applied the basic ideas from this process in their classes. Now most incoming students are currently encouraged to attend self actualization classes.

We have found that the self actualization process helps students

identify realistic goals, reinforce positive attitudes they have about themselves and it increases each group member's commitment to achieve his educational goals .... and even more to follow through on this commitment. This is the result of constraint identification by faculty.

Counselors at Mt. San Jacinto College have helped train faculty members in more than 30 schools and colleges to utilize the self actualization process.

The next major constraint commonly identified in conferring sessions .... was below level reading and writing capabilities among students who were failing to live up to their potential in both academic and occupational technical classes. Although this community college had special reading and writing classes for students with problems in English, these classes were not solving the constraints identified by most teachers. By rearranging financial priorities a reading and writing laboratory was set up which provided individualized diagnostic testing devices, individualized instructional materials and teams of instructors, counselors, teacher aides and student tutors. The learning and verbal performance of students with special needs has improved; all teachers are more aware of student deficiencies and are referring increasing numbers of students to the lab - and even the verbally capable are coming in to increase their skills.

As faculty looked at their reported productivity and at the cost per unit earned by their students, they suggested further individualizing instruction in order to keep attendance high and reduce costs.

Almost from its beginning Mt. San Jacinto Community College has been working on developing individualized filmstrip-tape-worksheet lessons to use for self-paced instruction. With this system the instructor has an opportunity to serve as a learning consultant to each student. Group learning activity still takes place -- frequently

enough to stimulate a learning-together feeling -- but the individualized instruction gives teachers more time to work with individuals, and students who need more time to understand concepts taught, time to repeat difficult parts of the lesson.

The use of individualized media in most technical classes permits open enrollment for new students to enter any day of the semester. Individualizing instruction also lets students earn variable credits. In an auto technology course the student may earn from 1 to 7 credits -- in typing, one-half to 2 units. Variable credit makes the use of units a more realistic measure of output. The student who earns half the units in a semester for auto technology should receive the credit for what he's done -- and the course should be credited with that output. Also with open enrollment another student is enrolled when there is an opening during the semester and the class output is maintained at maximum.

It must be remembered that the process of a faculty member defining what competencies his students will have for each unit of credit is imperative to the functioning of this type of a management by objectives system. The process of an administrator and instructor conferring about constraints which keep students from achieving their educational maximum and then have the school rearrange their priorities to do something about these constraints is another vital part of the process.

When a faculty member and an administrator discuss the output of classes (units earned by students) each semester and their discussion leads to increasing the output and reducing the cost, this becomes the essence of a management by objectives system.

There should be institutional objectives which relate to the whole spectrum of service functions - library, counseling, administration,

maintenance and many others. When the staff, who are involved in the service functions, participate in setting measurable objectives, they are more likely to willingly plan how to render the services for less.

If the process develops staff concern about costs, this concern can be more important than the report which is made to the trustees and to the media. Certainly it will be more productive in producing needed changes in the classroom and in school management.

How can you get faculty interested in working toward a management by objectives system? Some faculty members are eager to participate but most are reluctant. It has taken more than three years of concentrated work to teach and encourage most of our teachers to write objectives for their classes. We used a university extension class with salary credits as one motivator. We offered summer employment in writing individualized instruction for faculty members who would prepare measurable and currently unmeasurable objectives. We pay a teacher $150 per set of course objectives if the college could sell them to others who were having to do the same thing. There is a page in our individualized instruction-multi media catalog which lists the measurable and currently unmeasurable objectives for 29 courses which have been written to publishable standards. Several times that many have been written for local use and are not up to publishable quality.

Finally, the whole process needs to be monitored by an outsider - an educational auditor. The institutional objectives report must accurately reflect the accomplishment of the educational services rendered. An

educational audit provides an assurance to the public by confirming that a statistically reliable selection of program objectives has been achieved as reported. The basic purpose of the educational audit parallels the basic purposes of the financial audit. A helpful financial audit not only assures the trustees and the public that the institution's funds have been dealt with honestly but also offers recommendations for procedures in handling funds so that in the future business operations can be done more efficiently and procedures will be followed which will improve the efficiency of the operation.

The educational auditor can, especially in the formative years of this new service, assist by suggesting better methods of setting objectives and measuring educational output. This would be done in addition to his role of providing independent outside authority and credibility to the output statistics.

Undoubtedly, the most desirable educational auditor would be a person with a strong background in both systems management and all phases of the educational process. Ideally, he should be a new professional - a "Certified Educational Auditor" - trained in educational philosophy, psychology, curriculum, methodology, statistics, and systems. Further, he should have experience in the operation of an educational system at the level of instructor and at the level of manager. Above all, he should be trained in, and thoroughly committed to, objectivity in his observations, reports, and recommendations.

An Institutional Objectives approach to management by objectives with its strong emphasis on increasing output and reducing costs is the most likely process which we have on the horizon to help us win full and lasting respect from the public for our educational institutions'. But even more importantly it will help more students achieve their educational objectives.